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effectively the computer plays a two-team management game simulating the key microprocesses of price and output determination as the authors see them. Analysis of the model is by multiple regression to select those parameters to which the model is most consistently sensitive, but the results of this are stated without factual evidence. The 50 pages of computer programme and output will be digested by only the most ardent readers.

The authors see their work as complementary to that of the operational research scientist (p. 290). The reviewer would agree to the extent that the book can be recommended to the younger operational research man who wants some good general reading on how decisions are made in business in the absence of formal decision models. The more experienced practitioner might pick up some different points of view by skimming it, and will find the chapter summaries useful where they are included.

P. A. LOSTY

Second War Gaming Symposium Proceedings (16, 17 March 1964).

MURRAY GREYSON, Editor.

Washington Operations Research Council, Washington, D.C., 1964. 174 *pp.*

The Washington Operations Research Council deserves credit for organizing this timely and very comprehensive symposium on War Gaming. The purpose of the symposium was "to give non-gaming operations research practitioners . . . a description of this tool . . . a glimpse of what is currently being done, and a glimpse of what can be expected in the future". The speakers and panel members were from the three services, the Joint Chiefs of Staff, and the Arms Control and Disarmament Agency.

Games were described ranging from simple desk types to complex computer operated and simulation reinforced types. A minimum of time was spent on technique. Rather, the emphasis was on organization for gaming, and on the relationships among gaming, analytical models, and computer simulation. Some of the more interesting discussions were on the following topics:

1. The purpose of war gaming—For training? For research? For general problem solving?
2. The importance and the difficulties involved in the development of the game concept paper or scenario.
3. The danger of preconceptions by the game designer and the players (or users).
4. The dependency on the experience of the players.
5. The dependency on availability of the appropriate quantity and quality of input data.
6. The problem of time, talent, and expense to design, play, and evaluate results.

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7. The degree of need for the player to understand and have confidence in the "black boxes" or mathematical appendixes in the game rule books.

There was a surprising amount of rapport between the proponents of analytical methods and the proponents of simulation. It almost appears that the discussion of gaming provided a common meeting ground where strengths and weaknesses of both viewpoints could be appreciated. If this is so, we may see another useful synthesis taking place in the operations research disciplines.

The one, somewhat negative, impression distilled from the proceedings is that these games are, to a large degree, still being treated as games. In these times of increasing complexity and uncertainty, it is extremely important that concepts and techniques be put to practical use as soon as possible. The state of the arts in military cost–benefits analysis must be pushed ahead quickly to reinforce those who are responsible for making decisions of increasing significance. There is no need to change the name of "gaming". There is a need to build gaming into the operational levels of doctrine, policy, and especially, into the initial writing of specifications for weapons systems.

In a world where people toy with the peculiar assumptions of "first strike", the subject of this symposium can be the insurance that reasoning will be available to offset impulse.

ADRIAN M. McDONOUGH

Delay Tables (for finite and infinite source systems).

A. DESCLOUX.

McGraw-Hill, New York. 440 *pp.* £5 16*s.* 6*d.*

This set of tables gives numerical results for the queueing process in which N sources of customers each generate the same constant Poisson demand for service; when n customers are in the service system the queue input is proportional to $(N-n)$. There are several servers each with identical negative exponential service time distribution.

There is an introduction giving the relevant queueing equations and formulae.

The results tabulated for a given number of sources (N), a given number of servers (c) and a given server occupancy (A/C where A = expected number of busy servers under equilibrium conditions) are:

1. The ratio $M/(1+M)$ where $M = \lambda \times \tau$ (τ = average service time).
2. The average delay for all requests.
3. The standard deviation of the delay distribution for all requests.
4. The probability that a request will not be attended to immediately.
5. The probability that a source will have to wait at least $k \times$ average service time (where k takes the values 0·25, 0·5, 1, 1·5, 2, 3 and 4, for a range of values of N, C and A/C). Unfortunately no method of interpolation is given.

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